

A patient with pain in the throat and chest

I.Krivokuca^{1*}, J-W.J. Lammers²

¹Department of Pulmonology, Sint Lucas Andreas Hospital, Amsterdam, the Netherlands, ²Department of Pulmonology, University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, the Netherlands, *corresponding author: e-mail: i.krivokuca@slaz.nl

CASE REPORT

An 18-year-old male with a history of asthma presented to the emergency room with pain in his throat and chest lasting two days, which worsened with inspiration. He had no risk factors for venous thromboembolism and he denied trauma or any activity that may result in a Valsalva manoeuvre, such as coughing, sneezing or vomiting. On admission we saw a tall thin young man. Physical examination revealed no abnormalities. Percutaneous oxygen saturation was 100% while breathing room air. Laboratory investigations, inclusive D-dimer, were normal.

A chest radiograph was obtained (*figure 1*) and we were directly called by a concerned radiologist.

WHAT IS YOUR DIAGNOSIS?

See page 361 for the answer to this photo quiz.

Figure 1. Chest radiograph on admission



ANSWER TO PHOTO QUIZ (ON PAGE 360)
A PATIENT WITH PAIN IN THE THROAT AND CHEST

DIAGNOSIS

The chest radiograph (*figure 1*) demonstrated a pneumomediastinum without subcutaneous emphysema. The patient was admitted because of the spontaneous pneumomediastinum and observed for four days. He recovered rapidly, his symptoms disappeared without any intervention other than analgesics, bed rest and reassurance. Within one week he was seen as an outpatient and his chest X-ray appeared to be normal.

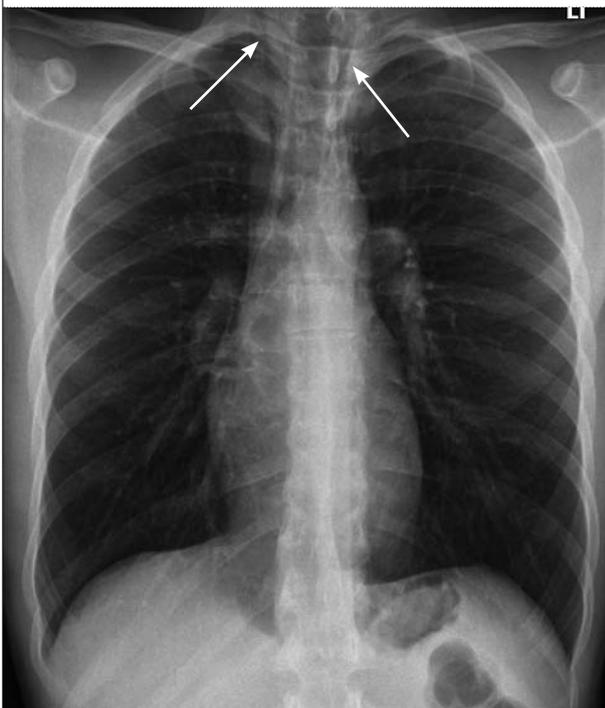
The first report of a spontaneous pneumomediastinum was by Hamman in 1939.^{1,2} Hamman's sign (crunching sound or crepitation synchronous with the heart beat on chest auscultation) is the pathognomonic sign of a spontaneous pneumomediastinum.^{1,2} Physical examination can also

reveal subcutaneous emphysema, which was not present in our patient.

The pathophysiology of this disorder was described by Macklin and Macklin.^{1,2} An alveolar rupture caused by overdistension or increased alveolar pressure is the most relevant underlying factor. Alveolar rupture allows bubbles of gas to dissect along the pulmonary vasculature towards the hilum and subsequently the mediastinum.^{1,2}

Spontaneous pneumomediastinum is a rare (1 in 30,000 emergency department referrals), self-limiting and benign condition that usually occurs in young men who present without an apparent precipitating event.^{1,2} An asthma history has been reported in up to half of the cases.¹ Therefore chest pain in an asthma patient can be caused by a spontaneous pneumomediastinum. This condition may be underdiagnosed.³ It is important to exclude other serious conditions such as a Boerhaave syndrome in persons with chest pain after vomiting or bronchial rupture by endoscopy or contrast investigations (oesophagogram).^{1,3} If a healthy young person complains about chest pain, spontaneous pneumomediastinum should be considered as the cause of the symptoms (differential diagnosis).²

Figure 1. Chest radiograph on admission



CONCLUSION

Spontaneous pneumomediastinum.

REFERENCES

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3. Momin AU, Chung DA, John LCH. Childhood asthma predisposes to spontaneous pneumomediastinum. *Emerg Med J* 2004;21:630-1.